CLAIMS

What is claimed is:

1.   A method for managing bandwidth in a wireless probe measurement system comprising:

receiving an indicator at said wireless probe to begin taking measurements of one or more variables;

measuring said one or more variables;

calculating a set of statistical values at said wireless probe using said measured one or more variables; and

transmitting said set of statistical values to a central station.

2.   The method of claim 1 further comprising:

marking each measurement of said one or more variables with one or more of:

a time of said measurement; and

a location of said measurement.

3.   The method of claim 1 further comprising:

comparing said one or more variables to preset alarm conditions;

setting an alarm state in response to finding an exceeded one of said preset alarm conditions.

4.   The method of claim 3 further comprising:

assigning a medium priority level to said set of statistical values;

assigning a low priority to said measurements; and

assigning a high priority to said alarm state.

5.   The method of claim 3 wherein said transmitting step further comprises:

checking for said high priority items prior to transmitting said set of statistical values;

transmitting said high priority items before said transmitting of said set of statistical values; and

transmitting low priority items when there are no high priority items and when there are none of said set of statistical values to transmit.

6.   The method of claim 1 wherein said indicator comprises one or more of:

passage of a predetermined time;

passage of a predetermined distance by said wireless probe; and

a combination of said passage of said predetermined time and distance.

7.   The method of claim 1 wherein said calculating step comprises:

calculating a set of statistics using said measured one or more variables.

8.   The method of claim 1 wherein said calculating step comprises:

calculating a set of intermediate statistical values using one or more variables.

9.   The method of claim 8 wherein said calculating said set of intermediate statistical values uses one or more of:

one or more variables measured by a plurality of wireless probes; and

one or more variables measured within a single location by a single one of said plurality of wireless probes.

10.   The method of claim 1 further comprising:

storing said measured one or more variables in a storage device locally accessible by said wireless probe.

11.   The method of claim 10 further comprising:

decimating said measured one or more variables to reduce a size of said measured one or more variables prior to said storing.

12.   The method of claim 1 further comprising:

discarding said measured one or more variables after said calculating step.

13.   The method of claim 1 wherein said wireless probe measurement system is logically divided into a grid, wherein said wireless probes measures for said phenomena in one or more bins of said grid.

14.   The method of claim 1 further comprising:

defining an region over which said wireless probe measures said one or more variables; and

dynamically generating a statistical bin around said wireless probe, wherein an area of said statistical bin is defined by a relationship between said measured one or more variables.

15.   The method of claim 14 further comprising:

calculating said set of statistical values using said measured one or more variables measured within said area of said statistical bin.

16.   The method of claim 14 further comprising:

dynamically creating a new statistical bin responsive to new ones of said measured one or more variables differing from said calculated set of statistical values by a predetermined amount.

17.   A wireless probe for measuring desired phenomena comprising:

a processor;

a transducer for capturing measurements;

code operable by said processor, for calculating statistical information on said captured measurements; and

a communication interface for transmitting said statistical information to a data clearinghouse.

18.   The wireless probe of claim 17 further comprising:

a clock, wherein each of said captured measurements is stamped with a time of measurement from said clock.

19.   The wireless probe of claim 17 further comprising:

a locator device, wherein each of said captured measurements is stamped with a location of measurement from said locator device.

20.   The wireless probe of claim 17 wherein said code calculates statistical variables using said captured measurements.

21. The wireless probe of claim 17 wherein said code calculates intermediate statistical values using said captured measurements, wherein said intermediate statistical values are used by said data clearinghouse to analyze said desired phenomena.

22. The wireless probe of claim 17:

wherein said captured measurements are captured over a plurality of preset locations;

wherein said code calculates separate intermediate statistical values for separate areas within one or more of said plurality of preset locations using said captured measurements; and

wherein an aggregate statistical value is calculated for said one or more of said plurality of preset locations using said separate intermediate statistical values.

23. The wireless probe of claim 17 further comprising:

a storage interface for communicating said captured measurements to a local storage device.

24. The wireless probe of claim 23 further comprising:

dropping select ones of said captured measurements to reduce a size of said captured measurements prior to storing on said local storage device.

25. A method measuring desired phenomena using a wireless probe comprising:

measuring one or more variables related to said desired phenomena;

calculating statistical data at said wireless probe using said measured one or more variables, responsive to receiving a transition event notification; and

transmitting said statistical data to a central processing location.

26. The method of claim 25 further comprising:

stamping each measurement of said one or more variables with one or more of:

a time of said measurement; and

a location of said measurement.

27. The method of claim 25 wherein said measuring step is executed according to one or more of:

passing of a predetermined time;

passing of a predetermined distance by said wireless probe; and

a combination of said passing of said predetermined time and distance.

28. The method of claim 25 further comprising:

comparing said one or more variables to predetermined alarm condition;

creating an alarm message in response to finding a violated said predetermined alarm condition.

29. The method of claim 28 further comprising:

assigning a medium priority level to said statistical data;

assigning a low priority to said one or more variables; and

assigning a high priority to said alarm message.

30. The method of claim 28 wherein said transmitting step further comprises:

checking for said high priority items prior to transmitting said statistical data;

transmitting said high priority items before said transmitting of said statistical data; and

transmitting low priority items when there are no high priority items and when there are none of said statistical data to transmit.

31. The method of claim 25 wherein said calculating step comprises:

calculating statistical values using said measured one or more variables.

32. The method of claim 25 wherein said calculating step comprises:

calculating intermediate statistical data using one or more variables.

33. The method of claim 25 further comprising:

storing said measured one or more variables in a memory device local to said wireless probe.

34. The method of claim 33 further comprising:

decimating said measured one or more variables prior to said storing.

35. The method of claim 25 further comprising:

defining an area over which said wireless probe measures for said desired phenomena;
and

overlaying a grid over said area, wherein said area is divided into a plurality of bins.

36. The method of claim 35 wherein said wireless probe calculates said statistical data for each of said plurality of bins for which said wireless probe measures said one or more variables related to said desired phenomena.

37. The method of claim 25 further comprising:

defining an area over which said wireless probe measures for said desired phenomena;
and

dynamically creating a statistical bin around said wireless probe, wherein an area of said statistical bin is defined by a correlation between said measured one or more variables related to said desired phenomena.

38. The method of claim 37 further comprising:

calculating said statistical data using said measured one or more variables measured within said area of said statistical bin.

39. The method of claim 37 further comprising:

dynamically creating a new statistical bin responsive to new ones of said measured one or more variables differing from said calculated statistical data by a predetermined amount.

40. A method for analyzing desired phenomena in a defined area using a plurality of wireless probes, said method comprising:

dividing said defined area into a grid having a plurality of grid sections;

taking raw measurements related to said desired phenomena across said defined area;

determining a location of each of said raw measurements;

assigning each of said raw measurements to one of said plurality of grid sections responsive to said location falling within a perimeter of said one of said plurality of grid sections;

calculating statistical data at said wireless probe using said raw measurements; and

communicating said statistical data to a central analysis center.

41.   The method of claim 40 further comprising:

marking each of said raw measurements with a measurement time; and

marking each of said raw measurements with a measurement location.

42.   The method of claim 40 wherein said taking said raw measurements is responsive to one or more of:

a predetermined distance traveled by said wireless probe;

a predetermined time period elapsed; and

a predetermined distance traveled when a predetermined period of time has also elapsed.

43.   The method of claim 40 further comprising:

dividing said plurality of grid sections into further segments by one of said plurality of wireless probes;

compiling said statistical data by said one of said plurality of wireless probes according to said further segments; and

aggregating said compiled statistical data corresponding to said further segments at said one of said plurality of wireless probes prior to said transmitting.

44.   The method of claim 40 wherein said calculating step comprises:

calculating intermediate statistical values using said raw measurements.

45.   The method of claim 40 further comprising:

storing said raw measurements and said statistical data in a memory local to said plurality of wireless probes.

46.   The method of claim 45 further comprising:

deleting selected ones of said raw measurements prior to said storing.